

ABSTRACT

Methods and systems are disclosed for downhole processing of measurements made in a wellbore during the construction of the wellbore. The system includes a sensors located downhole adapted to measure a two downhole parameters. The system uses a downhole processor to calculate a statistical relationship, preferably covariance, between the two downhole parameters. A transmitter located downhole and in communication with the downhole processor is used to transmit the calculated statistical relationship to the surface. At the surface the statistical relationship is compared with surface acquired data and surface drilling operating parameters are altered based on the statistical relationship.